

WHAT IS CLAIMED IS:

1. A communications satellite system, comprising:
 - at least one user terminal;
 - at least one gateway terminal;
 - a communications satellite for conveying communication signals between said user terminal and said gateway terminal;
 - a forward communication path between said user terminal and said gateway terminal through said communications satellite;
 - a return communication path between said user terminal and said gateway terminal through said communications satellite;
 - at least one equivalent signal component, located in both said forward and return communication paths, for operating upon said communication signals; and
 - said equivalent signal component having substantially the same operating range in both said forward and return communication paths for at least one operating characteristic.
2. The communications satellite system of claim 1, wherein said equivalent signal component includes at least one of a low noise amplifier, a downconverter, and a transmission amplifier in each of said forward and return communication paths.
3. The communications satellite system of claim 1, wherein said equivalent signal components include a low noise amplifier in each of said forward and return communication paths; and
 - wherein said range for said operating characteristic of said low noise amplifiers includes the same bandwidth and center frequency.

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4. The communications satellite system of claim 1, wherein said equivalent signal components include a downconverter in each of said forward and return communication paths; and

wherein said range for said operating characteristic of said downconverter includes the same operating band and local oscillator frequency.

5. The communications satellite system of claim 1, wherein said equivalent signal components include an upconverter in each of said forward and return communication paths; and

wherein said range for said operating characteristic of said upconverter includes the same operating band and local oscillator frequency.

6. The communications satellite system of claim 1, wherein said range has at least one of common minimum and maximum level for said equivalent signal components in said forward and return communication paths.

7. The communications satellite system of claim 1, wherein said range constitutes substantially identical bandwidth for said equivalent signal components in said forward and return communication paths.

8. The communications satellite system of claim 1, wherein said range constitutes substantially identical gain for said equivalent signal components in said forward and return communication paths.

9. The communications satellite system of claim 1, wherein said range constitutes substantially identical frequency range for said equivalent signal components in said forward and return communication paths.

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10. The communications satellite system of claim 1, wherein said range constitutes substantially identical center frequency for said equivalent signal components in said forward and return communication paths.

11. The communications satellite system of claim 1, wherein said equivalent signal component includes a single downconverter operating in both said forward and return communication paths.

12. The communications satellite system of claim 1, wherein said equivalent signal component includes a single low noise amplifier operating in both said forward and return communication paths.

13. The communications satellite system of claim 1, wherein said equivalent signal component includes a single orthomode transducer operating in both said forward and return communication paths.

14. In a communications satellite, a receiver subsystem comprising:
an input lead for accepting a first communication signal for a forward communication path and a second communication signal for a return communication path;

at least one equivalent signal component having a single operating range in both said forward and return communication paths for at least one parameter of said equivalent signal component; and

said equivalent signal component including at least one of a low noise amplifier and a downconverter.

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15. The receiver subsystem of claim 14 wherein said equivalent signal component includes said low noise amplifier in each of said forward and return communication paths; and

wherein said range for said parameter of said low noise amplifiers includes the same bandwidth and center frequency.

16. The receiver subsystem of claim 14, wherein said equivalent signal component includes said downconverter in each of said forward and return communication paths; and

wherein said range for said parameter of said downconverter includes the same operating band and local oscillator frequency.

17. The receiver subsystem of claim 14, wherein said equivalent signal component includes a single said downconverter operating in both said forward and return communication paths.

18. The receiver subsystem of claim 14, wherein said equivalent signal component includes a single said low noise amplifier operating in both said forward and return communication paths.

19. In a communications satellite, a transmitter subsystem comprising:
an output lead for outputting a first communication signal for a forward communication path and a second communication signal for a return communication path;

at least one equivalent signal component having a single operating range in both said forward and return communication paths for at least one parameter of said equivalent signal component; and

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said equivalent signal component including at least one of an upconverter and a transmission amplifier.

20. The transmitter subsystem of claim 19, wherein said equivalent signal component includes said upconverter in each of said forward and return communication paths; and

wherein said range for said parameter of said upconverter includes the same operating band and local oscillator frequency.

21. The transmitter subsystem of claim 19, wherein said range constitutes substantially identical bandwidth for said equivalent signal components in said forward and return communication paths.

22. The transmitter subsystem of claim 19, wherein said range constitutes substantially identical frequency range for said equivalent signal components in said forward and return communication paths.

23. A communications satellite, comprising:

an antenna receiving communication signals from at least one user terminal and at least one gateway terminal;

a forward communication path between said user terminal and said gateway terminal through said communications satellite;

a return communication path between said user terminal and said gateway terminal through said communications satellite;

at least one equivalent signal component, located in both said forward and return communication paths, for operating upon said communication signals; and

said equivalent signal component having substantially the same operating range in both said forward and return communication paths for at least one operating characteristic.

24. The communications satellite of claim 23, wherein said equivalent signal component includes a low noise amplifier in each of said forward and return communication paths; and

wherein said range for said operating characteristic of said low noise amplifiers includes the same bandwidth and center frequency.

25. The communications satellite of claim 23, wherein said equivalent signal component includes a downconverter in each of said forward and return communication paths; and

wherein said range for said operating characteristic of said downconverter includes the same operating band and local oscillator frequency.

26. The communications satellite of claim 23, wherein said equivalent signal component includes an upconverter in each of said forward and return communication paths; and

wherein said range for said operating characteristic of said upconverter includes the same operating band and local oscillator frequency.

27. The communications satellite of claim 23, wherein said range constitutes substantially identical gain for said equivalent signal components in said forward and return communication paths.

28. The communications satellite of claim 23, wherein said range constitutes substantially identical frequency range for said equivalent signal components in said forward and return communication paths.

29. The communications satellite of claim 23, wherein said equivalent signal component includes a single downconverter operating in both said forward and return communication paths.

30. The communications satellite of claim 23, wherein said equivalent signal component includes a single low noise amplifier operating in both said forward and return communication paths.